Conversely, if power is applied to the motor there will be a positive slip increasing the speed above synchronous speed in proportion to the driving power applied. The motor in this case will act as a generator. The greater the amount of power applied the greater will be the amount of positive slip. When attached directly or indirectly to a gasoline type internal combustion engine the squirrel cage motor will either absorb power or motor the engine. This may be from almost zero reading to a vacuum reading that may run as high as 25 in. Hg. The vacuum reading is controlled by the position of the engine throttle and the high vacuum is, of course, dependent upon the mechanical condition of the engine.

This conception of a dynamometer design was developed by the Maxwell Dynamometer Co. A feature of it is the use of 20 in. diameter rollers

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driven by the driving wheels of the vehicle under test. This large roller size is less apt to lose power due to slipping between the driving tires and the roller.

On this dynamometer, testing of a vehicle is generally done at two fixed speeds, such as 25 and 50 mph. This is accomplished by using a two speed design so arranged that the operator can select either speed at will by the pressure on a button in the remote hand control unit. If acceleration or deceleration tests are required for speeds from zero to 60 mph, the vehicle may be operated at any speed under conditions of inertia similar to the level road.

A chassis dynamometer makes it possible for the overall performance of a vehicle to be quickly and thoroughly checked. If it measures up to minimum requirements it can be given an oil change, lubrication and sent back into service. If any component such as brakes, wheel alignment, engine, power train, etc., does not measure up to the required performance, the trouble is then pin-pointed and analyzed and the vehicle is moved to the shop stall for the actual service required. This method saves shop and customer time.

VACUUM GAUGE IMPORTANT

On all dynamometer testing, the vacuum gauge is an important instrument. When diagnosing an engine, the horsepower meter reflects the vehicle's road horsepower or its ability to perform in the owner's hands. Tests are made with the throttle wide open and therefore the horsepower at any selected speed is dependent on the en-

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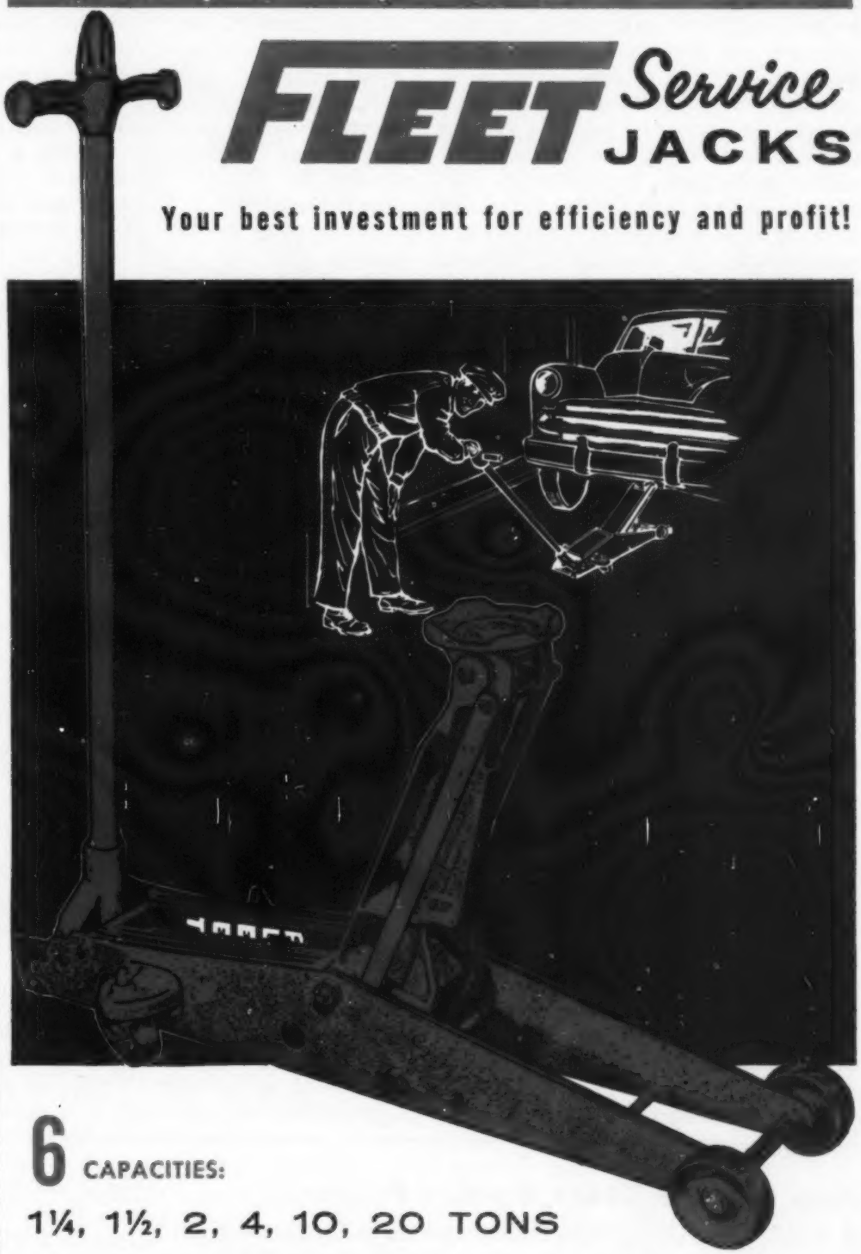

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Check Crankcase Vents

• A NUMBER of engines have road draft tubes for venting the engine crankcase. Due to the nature of the gases that are vented from the crankcase, deposits of varnish and sludge frequently build up which may eventually clog the vent tube so that there is little, if any, ventilation from the crankcase.

A certain amount of blowby gets past the pistons, even in engines in good condition. This blowby, if not vented, will build up a pressure in the crankcase which causes leakage of oil out of the front and rear bearings.

Oil slick engine (above) on which a clogged breather was suspected was checked by connecting a radiator hose to the breather (right) and blowing through it.

When an engine is shiny with oil, a clogged vent pipe should be suspected. The passages provided for the valve push rods lead from the crankcase, and pressure developed there will frequently cause oil seepage from under the valve cover.

One way to check for a clogged breather or vent pipe is to put the car on a hoist and connect a length of radiator hose of the right size to the vent pipe and blow through it. If the vent pipe is open, it will be easy to blow through the radiator hose; if it is clogged, air will not go through.

If the pipe is found to be closed, it is quite important that it be removed and cleaned out. On Ford engines, there is a felt filter unit that should be replaced periodically, but is frequently neglected.

Radio Antenna Drainage

When undercoating in the area of the radio antenna, the antenna assembly should be covered to protect it from overspray, to avoid blocking the water drain holes in these units.

It is advisable to check the drain holes periodically to avoid any internal malfunction due to water collecting inside the unit.

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